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11. *M. supra et infraspinatus*, . . . . . 0·08 oz.

Arises from the inferior surface of the whole acromion and top of the scapula, and is inserted into the lesser tuberosity.

12. *M. subscapularis*, . . . . . 0·22 oz.

Arises from the whole lower and inner surface of the scapula, and is inserted into the back of the lesser tuberosity.

13. *M. serratus magnus*, . . . . . 0·06 oz.

Arises from the first and second ribs.

14. *M. biceps humeri*, . . . . . 0·15 oz.

Arises from the tip and posterior border of the coracoid, and is inserted into the tubercle of the radius.

N. B.—This muscle overlies the *coracobrachialis*.

The Rev. SAMUEL HAUGHTON, M. D., Fellow of Trinity College, Dublin, read the following paper:—

#### NOTES ON ANIMAL MECHANICS.

##### NO. XII.—ON THE MUSCULAR ANATOMY OF THE IRISH TERRIER, AS COMPARED WITH THAT OF THE AUSTRALIAN DINGO.

THE anatomy of the Dog is so well known, that I have not attempted in the following account to do more than exhibit the relative weights of the corresponding muscles in four typical specimens, and have added a few explanatory notes respecting facts that I have not found recorded in the writings of other anatomists who have described the muscles of the Dog.

The first Dog mentioned was a long-legged Irish Terrier, with about one-eighth Bull blood, and was a well-known fighting dog, of light weight.

The second Dog was very similar, but had not been trained to fight; he was a good water dog, and frequently caught and ate water hens, hunting on his own account.

The third Dog was a Dingo, long resident in the Zoological Gardens of Dublin, and his death was occasioned by his own misconduct; having devoured his four pups for breakfast, he was called to account for his misbehaviour by the mother of the pups, who throttled him on the spot, being persuaded, as some thought, that if she did not anticipate him, he would have proceeded to devour herself next.

The fourth Dog described was a Greyhound bitch, of excellent running qualities.

#### A.—*Muscles of the Hind Legs.*

It will be seen from a comparison of all the muscles that the Dingo is closely related to the Irish Terrier, but differs widely from the Greyhound.

IRISH TERRIER.				DINGO.	GREYHOUND.
No. 1.		No. 2.			
	Oz.		Oz.	Oz.	Oz.
1. Psoas, }	0·82	0·85	1·12	2·07	
2. Iliacus, }					
3. Pectineus,*	0·13	0·14	0·23	0·30	
4. Adductor brevis,	0·11	0·14	0·25	0·34	
5. Ad. magnus, .	1·86	2·80	3·50	6·27	
6. Obturator externus,	0·16	0·24	0·33	0·47	
7. Ad. longus, .	1·02	0·98	1·20	3·81	
8. Quadratus femoris,	0·09	0·13	0·23	0·21	
9. Obturator internus, &c.,	0·24	0·30	0·49	0·62	
10. Agitator caudæ et					
11. Glutæus maximus, }	0·41	0·38	0·84	0·77	
12. Tensor vaginæ femoris,	0·73	0·69	0·66	1·90	
13. Glutæus medius,	1·40	1·56	2·22	3·38	
14. Pyriformis, .	0·16	0·20	0·26	0·28	
15. Glutæus minimus, .	0·17	0·20	0·30	0·85	
16. <i>Gubernator caudæ</i> , part of the <i>intercostalis caudalis</i> (Greyhound), = 0·24 (as in Kangaroo) from interior of ilium behind acetabulum to costal processes of second and third caudals.					
1. Biceps femoris, †	2·71	2·85	4·66	7·60	
2. M. bicipiti accessorius, †	—	—	0·10	0·12	
3. Semimembranosus,	0·60	0·92	2·05	2·11	
4. Semitendinosus, .	0·90	1·10	1·81	3·18	
5. Gracilis, .	0·63	0·78	1·59	2·15	
6. Sartorius, §	0·61	{ 0·58 } { 0·19 }	{ 1·06 } { 0·31 }	{ 0·44 } { 0·45 }	
7. Rectus femoris, .	0·77	0·83	1·42	2·31	
8. Vastus externus,	1·50	1·61	3·01	5·01	
9. Vastus internus, .	0·74	0·87	1·54	2·67	
1. Gastrocnemius, .	1·21	1·72	2·40	{ 1·28 } { 1·87 }	
2. Popliteus, .	0·11	0·11	0·15	0·30	
3. Flexor dig. longus,	0·33	0·40	0·59	3·82	
4. Flexor hallucis longus,**	0·04	0·06	0·10	0·15	
5. Tibialis posticus, ††	—	—	0·01	—	
6. Flexor dig. brevis (perforatus), }	0·01	—	—	—	
7. Peronæus longus,	0·11	0·13	0·16	0·27	
8. Peronæus brevis,	0·02	0·03	0·03	0·03	
9. Peronæus tertius,	0·03	0·02	0·04	0·04	

\* Inserted into the fascia covering the *vastus internus*.

† Inserted into the fascia above the knee, and two-thirds down the fibula, terminating in the *tendo Achillis*, as in the Lion; the posterior fibres form a ribbon-like slip, distinct from the main body of the muscle, and terminating directly in the calcaneum, forming the *M. bicipiti accessorius*.

‡ Takes its origin from the sacro-ischiadic ligament.

§ The *sartorius* in the Dog is double; the greater part being inserted one inch down the inner side of the leg, and the lesser part being inserted into the side of the patella; in the Greyhound these parts are equal.

|| Outer head, 1·70 oz.; and inner head, 0·70 oz.

\*\* Arises from the back of the outer head of the tibia, and is inserted into the side of the broad tendon of the *flex. dig. longus*.

†† Reduced to a shining tendon, with usual origin and insertion.

	IRISH TERRIER.		DINGO.	GREYHOUND.
	No. 1. Oz.	No. 2. Oz.	Oz.	Oz.
10. Tibialis anticus et Extensor hallucis longus, . . . }	0·27	0·24	0·42	0·90
11. Extensor digitorum longus, <sup>b</sup> . . . }	0·30	0·28	0·37	0·68

B.—*Muscles of the Fore Legs.*

1. Trapezius clavicularis, <sup>c</sup>	0·47	0·49	0·70	0·71
2. Cleidomastoideus, <sup>d</sup>	0·46	0·47	0·69	0·61
3. Deltoideus clavicularis,	0·35	0·36	0·81	0·72
4. Trapezius scapularis, <sup>e</sup>	0·70	0·81	1·43	1·15
5. Omo-atlanticus, <sup>f</sup>	0·47	0·52	0·96	0·95
6. Rhomboideus, <sup>g</sup>	0·67	1·05	1·51	1·85
7. Serratus magnus,	2·23	2·74	3·84	4·50
8. Sternomastoideus,	0·64	—	1·00	1·38
9. Deltoideus scapularis, <sup>h</sup>	0·50	0·63	1·05	1·39
10. Latissimus dorsi, <sup>i</sup>	1·81	2·55	3·43	4·44
11. Teres major,	0·48	0·70	0·74	1·18
12. Subscapularis,	0·91	1·08	1·60	2·10
13. Pectoralis minor,	1·51	2·50	4·15	7·07
14. Pectoralis major,	0·83	1·10	1·92	1·97
15. Supraspinatus,	1·26	1·77	2·77	3·70
16. Teres minor,	—	0·08	0·10	0·14
17. Infraspinatus,	1·08	1·28	1·94	2·64
18. Coracobrachialis,	0·07	0·05	0·09	0·11
1. Triceps humeri,	3·85	4·85	8·23	10·89
2. Anconæus,	0·08	0·11	0·15	0·14
3. Biceps humeri,	0·45	0·48	0·85	1·15
4. Brachæus (externus),	0·23	0·33	0·59	0·67
5. Pronator radii teres,	0·05	0·06	0·12	0·13
6. Flexor carpi radialis, <sup>k</sup>	0·07	0·10	0·16	0·21
7. Flexor dig. sublimis,	0·21	0·25	—	0·46
8. Flexor carpi ulnaris, <sup>l</sup>	0·31	0·43	0·79	0·61

<sup>a</sup> A conjoined muscle, with two appropriate tendons inserted as usual.

<sup>b</sup> Arises by a round tendon inside the knee joint from the anterior surface of the outer condyle of the femur.

<sup>c</sup> Arises from the occipital ridge, and first to fifth cervical vertebra, and is inserted into the ligamental line that represents the clavicle.

<sup>d</sup> Arises from the mastoid process, and is inserted into the clavicular ligament.

<sup>e</sup> Arises from the dorsal vertebrae, and is inserted into the spine of the scapula.

<sup>f</sup> Arises from the transverse process of the atlas, and is inserted into the anterior part of the spine of the scapula.

<sup>g</sup> Including a slip from the occiput, as in the *Macacus nemestrinus*; it takes origin from all the cervical vertebrae and anterior half of the dorsal.

<sup>h</sup> Arises from the anterior extremity of the scapular spine, and from the fascia covering the anterior portion of the *infraspinatus* = *deltoideus externus* (Cuv.).

<sup>i</sup> Gives origin, near its insertion, to a fourth head of the *triceps*.

N. B.—There is also a cutaneous accessory.

<sup>k</sup> Inserted into the near end of the metacarpal of second finger (index).

<sup>l</sup> Consists of two distinct muscles, with double tendon-inserted into the pisiform bone.

	No. 1.	Dingo.
Condylloid head, . . .	0·08	0·12
Olecranon head, . . .	0·35	0·67
	0·43	0·79

	IRISH TERRIER.		DINGO.	GREYHOUND.
	No. 1. Oz.	No. 2. Oz.	Oz.	Oz.
9. Supinator radii longus, <sup>m</sup>	0·34	0·36	0·61	0·70
10. Extensor dig. commun., <sup>n</sup>	0·12	0·17	0·21	0·30
11. Extensor carpi radialis, <sup>o</sup>	0·04	0·06	0·09	0·09
12. Extensor carpi ulnaris, <sup>p</sup>	0·11	0·16	0·23	0·34
13. Supinator radii brevis,	0·03	0·03	0·07	0·06
14. Flexor dig. profundus,	0·43	0·63	1·02	1·38
15. Extensor oss. met. pollicis, <sup>q</sup>	0·03	0·07	0·08	0·10
16. Pronator radii qua- dratus, <sup>r</sup>	0·04	0·06	0·11	0·12

The Rev. SAMUEL HAUGHTON, M. D., Fellow of Trinity College, Dublin, read the following paper:—

#### NOTES ON ANIMAL MECHANICS.

##### No. XIII.—ON THE MUSCULAR ANATOMY OF THE BADGER.

THE muscles recorded in the present Note were observed in two fine specimens of the Badger (*Meles taxus*), male and female, which died in November and December, 1864, in the Gardens of the Royal Zoological Society of Ireland.

##### A.—Muscles of the Hind Limb (Male).

	Grs.		Grs.
1. Sartorius, . . . .	235	13. Glutæus quartus (ilio- capsularis), . . . .	20
2. Iliacus, . . . .	231	14. Tensor vaginæ femoris,	70
3. Psoas magnus, }			
4. Pectinæus, . . . .	70	15. Biceps femoris, . . . .	517
5. Adductor magnus, . .	374	16. Bicipiti accessorius (as in Lion), (6 inches long, and ribbon-like), . . . .	25
6. Obturator externus, .	110	17. Semimembranosus, . . .	490
7. Quadratus femoris, .	44	18. Semitendinosus, . . .	260
8. Obturator internus, et gem., . . . .	77	19. Gracilis, . . . .	245
9. Glutæus maximus, et agi- tator caudæ, . . . .	88	20. Rectus femoris, . . . .	250
10. Glutæus medius, . . .	350	21. Vastus externus, . . . .	385
11. Pyriformis, . . . .	40	22. Vastus internus, . . . .	105
12. Glutæus minimus, . .	20	23. Cruræus, . . . .	11

<sup>m</sup> Inserted into near ends of index and middle metacarpals.

<sup>n</sup> Distributed chiefly to the little and ring fingers.

<sup>o</sup> Distributed below the tendons of the *ex. dig. com.* to the little and ring fingers.

<sup>p</sup> Inserted into the outer and near end of the metacarpal of the little finger.

<sup>q</sup> Inserted into the inner and near end of the metacarpal of the thumb.

<sup>r</sup> Extends along the whole length of the radius and ulna.

<sup>s</sup> *Psoas parvus* = 142 grs.